WILDLIFE RESPONSE PLAN
for California

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9710 - WILDLIFE RESPONSE PLAN FOR CALIFORNIA

When oil spills occur in California, response actions concerning the identification, protection, rescue, processing and rehabilitation of oiled or threatened wildlife are performed by the Wildlife Branch, a subsection of the Operations Section within the Unified Command/Incident Command System (UC/ICS, sections 2100-2210) and commonly referred to as Wildlife Operations (WO) (Figure 1). Under the direction of the Wildlife Branch Director (WBD), WO are dedicated to prevent, reduce, document and mitigate spill impacts on wildlife.

This Area Contingency Plan's (ACP's) Wildlife Response Plan describes the responsibilities and capabilities of WO, including the procedures to be used and the personnel and equipment resources necessary to meet the wildlife protection responsibilities of the Federal and State governments in California oil spills. Section 9710.1, below, describes the statutory, policy and procedural bases for WO. Section 9710.2 describes the organizational infrastructure for wildlife response operations. Sections 9710.3 discusses initial WO activation and the factors to consider when developing a response. Section 9710.4 describes the various WO Group and Unit functions and procedures, including wildlife reconnaissance, protection, capture, transportation, veterinary treatment and rehabilitation activities in a spill. Section 9710.5 briefly addresses demobilization of WO. The Appendices include: a complete list bibliographic information on the documents cited in the text; detailed protocols for the processing and hazing groups; the Sea Otter Oil Spill Contingency Plan; Oiled Wildlife Care Network and volunteer information; and various forms to be used in WO. **Special Note.** The Appendices are not included in the hardcopy version of the Area Contingency Plan. However, they all can be found in their entirety on the USCG and CDFG-OSPR web sites at http://www.uscg.mil/pacarea/pm/Graphic/Response.htm and http://www.dfg.ca.gov/Ospr/index.html, respectively.

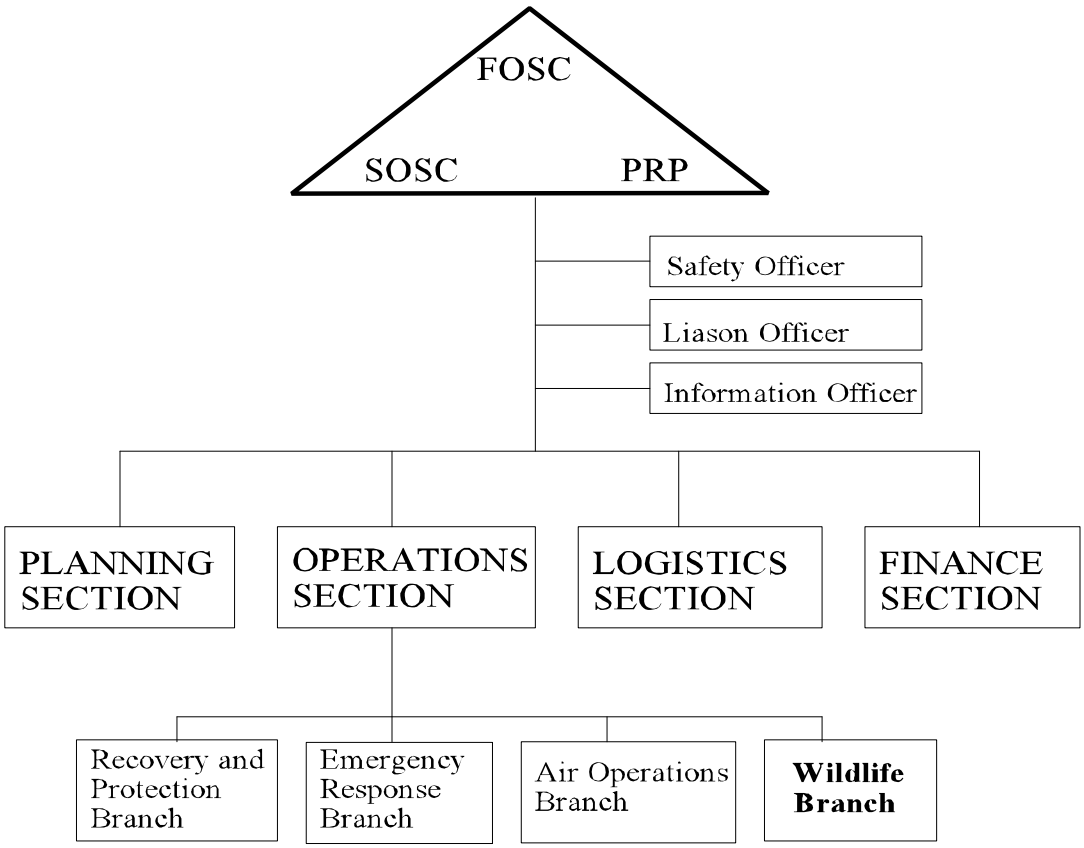
The Wildlife Response Plan for California has been developed jointly by the members of the wildlife operations subcommittee of the San Francisco Bay/Delta Area Committee. The Committee included personnel from the: California Department of Fish and Game - Office of Spill Prevention and Response, U. S. Coast Guard, U.S. Fish and Wildlife Service, National Oceanic and Atmospheric Administration, National Park Service, San Francisco Bay Conservation and Development Commission, the California Coastal Commission, Oiled Wildlife Care Network, and the Exxon Corporation. The Plan has been developed to meet the National Area Contingency Plan's Fish and Wildlife and Sensitive Environments Plan requirements set forth in 40 CFR Part 300, Section 300.210(c)(4), and to be usable throughout California.

While the Wildlife Response Plan has been designed principally to cover oil spills into marine waters as required by Federal and State law, it is applicable to inland oil and non-oil spills as well. The organizational structure, roles and responsibilities remain the same, although some functions may be altered as appropriate.

9710.1 INTRODUCTION & BACKGROUND

Marine wildlife in California are abundant and diverse, occurring in habitats that range from deep offshore waters to shallow tidelands, from steep rocky shores to sandy beaches and wetlands. About 200 species of coastal and marine birds, 33 species of cetaceans (whales and dolphins), six species of pinnipeds (seals and sea lions), and aquatic mammals including the California sea otter, river otters, and beavers are residents or migrants in the offshore, coastal,bay and estuary waters of California. Also, intertidal and subtidal habitats contain thousands of other species of fish, invertebrates and seaweeds (Leet et al., 1992). All marine wildlife species and their habitats are vulnerable to an oil spill (Bonnell, Ford and Casey, 1993).

Figure 1. Wildlife Branch position in the UC/ICS Organization



The principle objectives of WO during spill response and cleanup are to: (1) protect wildlife and habitats from oiling; (2) protect wildlife and habitats from adverse effects of response measures; (3) minimize unavoidable injuries to wildlife and habitats; (4) rescue and rehabilitate the maximum number of impacted wildlife possible; and (5) document for the Unified Command (UC) the resources at risk and the impacts to marine wildlife. To ensure that these objectives are achieved with maximum efficiency, WO coordinates and manages the activities of the federal, state, local agencies; along with commercial and non-profit organizations responsible for marine wildlife protection and management who fall under the authority of the UC during spill response. Successful WO are accomplished within the UC by the timely and effective deployment and coordination of equipment and trained personnel who carry out established protocols to avoid and minimize wildlife casualties, document impacts, and treat affected wildlife.

Federal and State Law Mandates. The Federal Oil Spill Pollution Act of 1990 (OPA-90) requires, as part of the National Contingency Plan for oil spills, that a Fish and Wildlife and Sensitive Environment Plan be developed in consultation with the U.S. Fish and Wildlife Service (USFWS), the National Oceanic and Atmospheric Administration (NOAA), and other interested parties, including state fish and wildlife agencies (33 U.S.C. § 1321(d)(2)(M)). The plan must include "immediate and effective protection, rescue, rehabilitation of, and the minimization of risk of damage to fish and wildlife resources and habitat that are harmed or that may be jeopardized by a discharge." The requirements for this plan as an annex to Area Contingency Plans are set forth in 40 CFR Part 300, Section 300.210(c)(4). The "Wildlife Response Plan" has been written in

conjunction with other sections of the Area Contingency Plan, to address the Federal requirements.

The fish and wildlife provisions of California's Lempert-Keene-Seastrand Oil Spill Prevention and Response Act (OSPRA) (Government Code §§ 8574.7, 8670.37.5) parallel or exceed the OPA-90 fish and wildlife response protection provisions in most respects. Under OSPRA, the Administrator of the California Department of Fish and Game-Office of Spill Prevention and Response (DFG-OSPR or OSPR) must develop contingency plans for the protection of fish and wildlife, assess injuries to natural resources, establish rescue and rehabilitation stations for marine wildlife, and require restoration plans for wildlife resources including habitat following spills. OSPRA also provides for the establishment and funding of the Oiled Wildlife Care Network (OWCN) (Government Code § 8670.37.5) as an essential component of California's wildlife response capability (Mazet et al., 1999).

Natural Resource Trustees. In any spill, the potential responsible party or discharger (PRP) is responsible to federal and state resource trustees, to federally-recognized Indian tribes, and to foreign trustees, all of whom are empowered to enforce remediation and seek compensation for injuries to natural resources caused by a discharge of oil (40 CFR Part 300, Subpart G). These trustee agencies also have a voice in determining the methods used so that wildlife operations comply with each trustee's governing laws and their obligations to preserve and protect wildlife and habitat. During a spill response, the wildlife trustee agencies will advise the Wildlife Branch Director (WBD) on local wildlife resources, especially sensitive species or habitats, logistical consideration, and other issues that arise.

The state and federal trustee agencies that are most likely to participate in WO decisions and response activities are as follows:

Federal:

Department of the Interior
National Park Service (NPS)
U.S. Fish and Wildlife Service (USFWS)
Department of Commerce
National Oceanic and Atmospheric Administration (NOAA)
National Marine Sanctuaries (NMS)
National Marine Fisheries Service (NMFS)
Department of Defense (DOD)

Although they are not natural resource trustee agencies, the U.S. Coast Guard (USCG) and/or the U.S. Environmental Protection Agency (EPA) are the lead federal agencies in a spill and also participate fully in WO decisions.

The California Department of Fish and Game-Office of Spill Prevention and Response is the lead state trustee agency for wildlife and habitat during oil spills. Other California trustee agencies, or agencies that may otherwise participate in WO decisions, include:

California Department of Fish and Game (CDFG)
California Department of Parks and Recreation (CDPR)
State Lands Commission (SLC)
California Department of Water Resources (CDWR)
California State Water Resources Control Board (SWRCB)
Regents of the University of California

Interagency Agreements Regarding Wildlife Response Activities. In an effort to provide a more efficient and coordinated response to the UC and natural resources, principal federal and State fish and wildlife trustees have signed cooperative agreements regarding a variety of issues during oil and toxic substance spills. These issues include agency response roles, capture, treatment, rehabilitation, and release of impacted wildlife. The agencies involved include the CDFG, the USFWS, and the NMFS. All of the documents can be found in Appendix Ib.

The first document, "Memorandum of Understanding Designating California Department of Fish and Game as Primary Contact for Fish and Wildlife Issues in the Event of Oil or Toxic Substances Spill within the State of California," acknowledges the fact that the USFWS and the CDFG share trustee responsibilities for endangered species, migratory birds and migratory fishes. This document identifies the CDFG to designate a primary contact person for support of the UC regarding fish and wildlife issues in the State of California during oil spill response. The stated duties of this person are to: advise on and coordinate activities related to fish and wildlife problems and issues related to the spill; advise and direct efforts to minimize injury to wildlife; coordinate efforts to recover and care for oiled wildlife; maintain communication with the USFWS; and adhere to permit conditions for both the federal and State wildlife permits. These duties correlate directly with the responsibilities of the WBD.

In a second agreement between the USFWS and the CDFG, authorization is given to the CDFG to "take" federally endangered and threatened species during emergencies. The document entitled "Cooperative Agreement Between the California Department of Fish and Game and the U.S. Fish and Wildlife Service Endangered and Threatened Fish, Wildlife and Plants,"establishes a cooperative agreement between agencies regarding the conservation and recovery of endangered, threatened and rare fish, wildlife and plants, pursuant to Section 6© of the Endangered Species Act of 1973 and the California Endangered Species Act of 1984. The agreement contains provisions for any employee or agent of the CDFG who is designated by that agency for such purposes may, when acting in the course of his official duties, take federally listed endangered and threatened fish, wildlife or plant species without a permit if such action is necessary. Those necessary actions are further defined in the Agreement in Appendix Ib. This gives the CDFG and its agents, such as the OWCN, permission to handle protected species during emergency spill response.

In a similar agreement to that with the USFWS, the CDFG has entered into an agreement with the NMFS to govern the rescue and rehabilitation of pinnipeds (seals and sea lions), cetaceans (dolphins and whales), and sea turtles. The document is entitled "Memorandum of Agreement Between the California Department of Fish and Game Office of Oil Spill Prevention and Response and the National Marine Fisheries Service Southwest Region Regarding the California Marine Mammal Stranding Network and the Oiled Wildlife Care Network" (Appendix Ib). The primary purposes of this agreement are (a) to ensure that pinnipeds, cetaceans, and sea turtles affected by oil spills in marine waters of the State receive the best achievable treatment and (b) to ensure the collection of sound biological and chemical data on such affected resources. The Agreement ensures consistency with and incorporates the NMFS guidelines and protocols on the rescue and release of live-stranded pinnipeds, cetaceans, and sea turtles into the OWCN protocols for response, rescue, rehabilitation and medical treatment of these animals, as outlined in the NMFS/OSPR Contingency Plan (Attachment A of this Memorandum). Other conditions include the required use of the California Marine Mammal Stranding Network (CMMSN) and OWCN personnel and facilities in the rescue and rehabilitation of pinnipeds, cetaceans, and sea turtles; cooperative information and data exchange programs, and the development of training materials.

9710.2 CALIFORNIA WILDLIFE OPERATIONS: PERSONNEL, EQUIPMENT AND OTHER RESOURCES

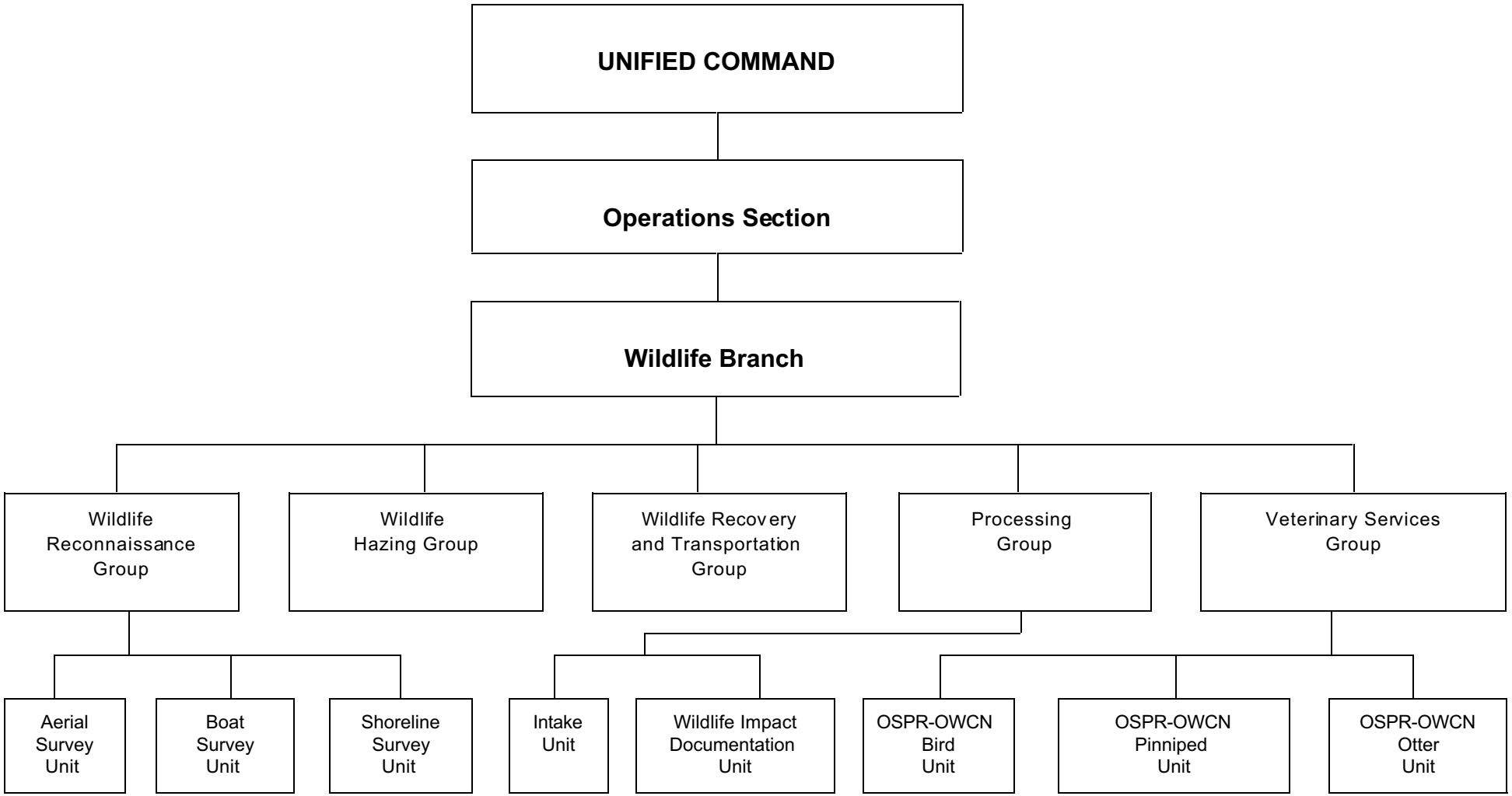
Wildlife Branch Director. All California WO during spill response are directed by the Wildlife Branch Director (WBD), who should be a representative of one of the natural resource trustee agencies (see Section 9710.1, above). The WBD is responsible for minimizing wildlife losses during spill response. The WBD coordinates early aerial, ground, and on-water reconnaissance of the wildlife in the spill area; employs wildlife hazing measures when required; ensures that a wildlife processing center is established and maintained; and recovers and rehabilitates impacted wildlife, and coordinates operations among the Federal and State trustee agencies (see Section 9710.1) and the OWCN (see below). The WBD also oversees activities of any other private wildlife care groups in addition to the OWCN, including those employed by the PRP. A full description of the WBD's duties and responsibilities is in Section 3250.

The five groups of the WO Branch -- Wildlife Reconnaissance Group, Hazing Group, Recovery and Transportation Group, Processing Group, and Veterinary Services Group -- serve under the direction of the WBD. The activities of these groups are described in Section 9710.4 below. The OWCN Supervisor and the OWCN Volunteer Coordinator also work under the direction of the WBD. Figure 2 shows the relationship of these groups within WO, and the units and teams that operate under each group. See Sections 3250 to 3255 of duty statements each position.

Because of the great sensitivity of wildlife and habitat resources and the potential dangers of working with wild animals, all WO personnel must have received any specialized training, such as animal handling training, that is necessary for safe, competent completion of their assignments. Most WO activities require the involvement of at least one professional wildlife biologist with knowledge of coastal resources and, preferably, previous oil spill response experience. Staff and volunteers trained by OWCN possess the skills and expertise to participate in many units within WO. The WBD is ultimately responsible for ensuring that each WO task is performed safely and properly by qualified personnel.

Office of Spill Prevention and Response (OSPR). Because the Department of Fish and Game is the lead state trustee agency for wildlife resources in California, it often takes the lead in the implementation of California WO. Further, as discussed previously, OSPR is subject to state statutory requirements to protect California wildlife in a spill. As principal developers and custodians of the environmentally sensitive sites listed in the ACP, OSPR biologists are uniquely knowledgeable about marine and coastal wildlife and experienced in issues during wildlife response operations. Thus, in a spill OSPR will bear significant responsibility for informed and timely decisions about the allocation and deployment of specialized wildlife protection, rescue, and rehabilitation resources. This includes decisions regarding staff, equipment, and contractors, in coordination with the trustees. In all larger California spills to date the WBD has been an OSPR employee.

Figure 2: **Wildlife Branch Organization**



Oiled Wildlife Care Network. In addition to the OSPR, the OWCN, a statewide cooperative system of specialized wildlife health centers set up by legislative mandate (see Government Code § 8670.37.5), is integral to WO. The OWCN maintains a corps of professionally trained volunteers, paid staff and veterinarians. When California wildlife are affected by an oil spill, these personnel retrieve the oiled animals, evaluate the animals' need for treatment, and remove the toxic products from the animals. OCWN personnel then rehabilitate impacted animals, locate suitable release sites, release animals, and monitor post-release survival. The OWCN has instituted 24 permanent wildlife care participant facilities along the California coast (see Figure 3 and Table 1) for use during a spill (Mazet et al., 1999). For more information on the OCWN, see Appendix IIa and the OCWN web page at www.vetmed.ucdavis.edu/OCWN.

Potential Responsible Party. The potential responsible party (PRP) or discharger may have existing agreements with the OWCN or individual wildlife rehabilitation and care organizations. The PRP may activate their own wildlife care contractors and/or designate staff to WO Branch positions. In either case, all personnel and equipment supplied by the PRP to WO will be managed by the WBD under the UC/ICS.

Volunteers. As noted above, WO personnel may include pre-identified, trained volunteers and/or "convergent" volunteers, who are not pre-identified and whose training may range from highly skilled to completely untrained. Most volunteers are provided by and/or coordinated through the OWCN. Volunteer management efforts for tasks unrelated to the OWCN volunteers (*e.g.* pre-impact beach assessments, post-spill economic impact surveys) are coordinated instead by the OSPR Statewide Volunteer Coordinator. During a spill, the WBD, in coordination with the OWCN Response Director and the Veterinary Services Group Supervisor, will appoint a Volunteer Coordinator to manage the influx of convergent and pre-identified volunteers. Convergent volunteers who wish to assist with oiled wildlife will be screened by the OWCN or the Volunteer Coordinator. Table 1 lists volunteer organizations that participate in the Oiled Wildlife Care Network, which can be activated by the OWCN as needed through the Wildlife Operations Branch. Appendix II contains a full discussion of the complexities of volunteer management specific to oiled wildlife care.

Figure 3. Participating Organizations in the Oiled Wildlife Care Network

Table 1: Participating Centers of the Oiled Wildlife Care Network

	Organization	Primary Response Facility	Activation	Maximum Caseload
1.	North Coast Marine Mammal Center, Crescent City	*	Nov. 1995	15 marine mammals
2.	Marine Wildlife Care Center, Arcata	*	Jan. 1997	400 birds
3.	Santa Rosa Bird Rescue Center, Santa Rosa		Aug. 1995	25 birds
4.	Wildcare, San Rafael		Aug. 1995	25 birds
5.	The Marine Mammal Center, Sausalito	*	Dec. 1995	40 marine mammals 10 sea otters
6.	International Bird Rescue Research Center (existing), Berkeley		Mar. 1996	100 birds
	International Bird Rescue Research Center, Cordelia (construction of new facility)	*	May 2000	1000 - 4000 birds
7.	Lindsay Wildlife Museum, Walnut Creek		Aug. 1995	50 birds
8.	Peninsula Humane Society Wildlife Care Center, San Mateo		Aug. 1995	50 birds
9.	UC Santa Cruz Avian Facility, Santa Cruz (construction of new facility)	*	Aug. 2000	400 birds
10.	Marine Wildlife Veterinary Care Research Center, Santa Cruz	*	July 1997	125 sea otters, 50 birds, 10 other marine mammals
11.	Native Animal Rescue, Santa Cruz		Aug. 1995	25 birds
12.	Monterey Bay Aquarium, Monterey	*	Apr. 1997	10 sea otters
13.	Monterey SPCA, Monterey		Mar. 1996	25 birds
14.	Pacific Wildlife Care, San Luis Obispo (construction of new facility)	*	Apr. 2000	200 birds
15.	The California Wildlife Center		Pending	200 birds
16.	Institute of Marine Science, UC Santa Barbara, Santa Barbara		Pending	100 birds
17.	Santa Barbara Wildlife Care Network, Santa Barbara		Aug. 1995	50 birds
18.	L.A. Bird Care and Education Center, San Pedro	*	Sept. 1999	1000 birds
19.	The Marine Mammal Center at Fort MacArthur, San Pedro	*	Nov. 1995	20 marine mammals
20.	Wetlands and Wildlife Care Center of Orange Co., Huntington Beach Wetlands Conservancy, Huntington Beach	*	Mar. 1997	400 birds
21.	Friends of the Sea Lion Marine Mammal Center, Laguna Beach		Aug. 1995	5 marine mammals
22.	Sea World of California, San Diego	*	Dec. 1996	20 marine mammals including sea otters; 400 birds; sea turtles as needed
23.	Project Wildlife, San Diego		Aug. 1995	25 birds
24.	Wildlife Health Center UC Davis, School of Veterinary Medicine, Davis		June 1995	Intensive care unit: birds and endangered species as needed

Specialized WO Equipment. Some of the equipment used within the Operations Section (*e.g.*, booms, skimmers, and shallow water vessels) will serve the mission of WO and can be drawn from industry and oil spill response organization inventories. Some equipment, however, is specialized for WO and dedicated to that purpose. As with personnel, the amount of specialized equipment deployed for WO can vary from a relatively small core of items to a full-scale deployment (see Table 2 delineating three basic levels at which equipment and personnel may be deployed). Among the equipment the OSPR has dedicated for immediate deployment are:

- Air boats (1);
- All-terrain vehicles (ATVs) (3);
- Capture boats (4);
- DFG fixed wing airplane (1);
- Hazing equipment and capture equipment (various);
- Mobile vet lab (2);
- One-ton wildlife truck (1);
- Vet truck (1);
- Wildlife care trailer (2);
- Wildlife supplies trailers (4) (contain hazing, capture, and transportation equipment);
- Wildlife transport trailer (1).

Additional equipment can be obtained from the CDFG and from other government agencies, the OWCN, and response contractors. For example, the equipment that OWCN can provide includes four-wheel drive vehicles, ATVs, a rigid-hull inflatable boat, hand-held dip nets, herding boards, spotlights, animal carriers, cages, crates, protective clothing, and all-weather gear.

Wildlife databases. Throughout California, wildlife resources and critical habitats that are sensitive and vulnerable to oil have been identified through the ongoing, systematic collection of baseline data by OSPR, the Area Committee's Sensitive Site/Geographic Response Subcommittee, and other agencies. These baseline data are used to project the level of risk to sensitive wildlife resources under different spill scenarios (Bonnell et al, 1993, Ford and Bonnell, 1995; and Section 9973 and the Geographic Response Plan Maps in that section). The data collected include annual aerial censuses of major marine bird colonies (*e.g.*, Carter et al., 1996, etc.), intermittent comprehensive breeding marine bird surveys (Carter et al., 1992), at-sea surveys of resident and migratory marine birds and mammals, semi-annual sea otter surveys, annual pinniped rookery censuses, weekly shoreline surveys (Roletto et al., 1998), and sensitive habitat and wetlands identification (RPI, 1994, 1996, 1998).

Relevant baseline data are compiled by OSPR in computerized Geographic Information Systems (GIS). Critical wildlife habitats in the GIS and the associated protection strategies in the ACP can be quickly identified and plotted. For example, salt marshes are delineated, along with recommended booming configurations to protect them. The GIS coverages as well as the NOAA Environmental Sensitivity Index (ESI) resource information can be produced on maps. In advance of a spill, these maps can be a planning tool to determine the relative sensitivity of each coastal region of California at risk from the spill. The data and maps also can be used in conjunction with those developed from real-time data during on-scene reconnaissance to evaluate the likely wildlife impacts and to guide the response decisions of the WBD, Planning Branch, and UC in the early stages of a spill. Additionally, information from these databases has been used to plan and locate wildlife care facilities and spill response equipment.

9710.3 ACTIVATION OF WILDLIFE OPERATIONS

Activation of the OSPR WO Resources. The best time to prevent wildlife impacts after a spill has occurred is during the earliest stages of the spill response. Therefore, it is imperative that OSPR be notified in a timely manner. Under California's OSPRA, the OSPR has the mandate and the capacity to mobilize its wildlife protection resources immediately, if necessary, to provide the best achievable protection for the state's wildlife, in accordance with the state contingency plan and the ACP (Government Code §§ 8574.7, 8670.3(c)(1), 8670.5, and 8670.7(b)). Therefore, the ACP and the UC may anticipate that WO will be initiated by OSPR immediately upon first notification of a spill. When taking early actions, OSPR will maintain close coordination with the evolving UC. Such early, but prudent, initiation of a wildlife response will ensure timely mobilization of dedicated resources will minimize resource impacts, and will contribute to effective cost containment. In these instances, OSPR's early WO will be guided by the ACP and will be integrated with the UC as it is formed. As soon as feasible, but in any event after the first 24 hours of a spill, the WBD will direct the development of the wildlife operations element of the Incident Action Plan (IAP) for the review and approval of the UC. Wildlife operations response activities should be described on the "Work Assignment Form" (ICS Form 204) and integrated into the daily IAP to be approved by the UC. The IAP will identify and authorize WO response actions for the duration of the spill.

Activation of the OWCN. The OWCN responds hand-in-hand with the OSPR during WO and, if needed, activation can be virtually simultaneous. Activation may be initiated by OSPR through the Duty Officer at OSPR's Headquarters Operations Center in Sacramento, upon first notification of a spill or at some later point by the WBD or an Incident Commander (IC) in consultation with the UC. Through OWCN, dedicated wildlife operations equipment (such as shallow-water vessels) and specially trained response contractors and personnel can be deployed immediately in combinations dictated by spill-specific circumstances (see Table 2). In consultation with the UC and the WBD, the OWCN Response Director may begin early notification actions of the OWCN response personnel and facilities, placing them on stand-by and enabling them to prepare their facilities. The OSPR and OWCN can be contacted directly, regarding spill notification and WO response, or through the USCG at any one of the following telephone numbers:

CDFG-OSPR Dispatch:		(916) 445-0045
OWCN:	General:	(530) 752-4167
	Dr. Jonna Mazet	(916) 556-7509
	or Dr. Scott Newman	(916) 523-7941
USCG-National Response Center:		1-800-424-8802
USCG-Marine Safety Office (MSO) San Francisco Port Area:		(510) 437-3073
USCG-MSO Los Angeles/Long Beach Port Area:		(310) 980-4444
USCG-MSO San Diego Port Area:		(619) 557-5860 (day)
		(619) 557-5870 (night)

Role of Area Contingency Plan in Initial Response. Under the terms of a 1997 Memorandum of Understanding (MOU) between the USCG and OSPR (see Section 9960), the ACP shall be used as the primary guidance document regarding natural resource protection in a California spill. Primary responsibility for oiled wildlife protection, rescue and rehabilitation will most likely be delegated to OSPR because of its legal mandates and specialized California wildlife expertise. Key portions of the Area Contingency Plan that will be used to identify wildlife and habitat protection concerns include "Sensitive Site Summaries and Strategies" (Section 9973) the "Geographic Response Plans" (Section 9973), and the "Oiled Wildlife Response Operations Plan" (this section) and their related databases, which are developed and maintained by OSPR personnel in conjunction with other Area Committee members (see Section 9710.2).

Developing an Initial Action Plan. Upon spill notification the WBD must evaluate a rapidly changing situation and develop an initial action plan, often literally while on the way to the spill site. Often, all the only initial source of information is the PRP's initial report of product, amount, and location, or observations by land managers of oiled wildlife strandings on beaches. It is a rare when all variables (*e.g.*, oil type and volume, location, geographic range of spill, wildlife at risk, etc.) are known prior to on-site reconnaissance. This section describes some of the information and variables that the WBD must consider to create the Wildlife Branch and provide an effective response.

The WBD must evaluate the situation in light of available staff, equipment resources and deployment options within the context of the applicable ACP. In order to determine which resources to mobilize, many different factors influence the response and must be considered. Some of these factors include:

- Type of oil (including persistence and emulsification properties);
- Quantity of oil;
- Frequency of oil deposition and oiled wildlife strandings;
- Concentrations of wildlife in the spill area;
- Presence of threatened or endangered species and/or critical habitat;
- Potentially affected habitats/ESI Rankings;
- Wildlife resources at risk;
- Human health hazards (Site Characterization);
- Time of Year/Season (*i.e.*, presence of migratory or breeding birds and mammals; and
- Weather and oceanographic conditions.

After reviewing the relevant factors with WO and Planning Section personnel, the WBD can verify the resources at risk; evaluate WO resource needs; assess the available wildlife personnel and equipment resources, and develop initial response objectives, such as identifying the areas with abundant wildlife that must be protected first and the tactics that should be implemented to maximize protection; and deploy wildlife recovery teams to likely stranding locations. Using this information, the WBD can formulate the initial wildlife operations action plan, which will include prioritized response objectives, an immediate call-out and implementation of personnel and equipment, and group and unit designations and task assignments.

While the initial evaluation process is described in some detail here, in practice it may be accomplished in a matter of a few moments, capitalizing on the WBD's experience and prior knowledge of wildlife resources and protection strategies (*e.g.*, hazing). The development of WO initial response strategies and their re-evaluation throughout the spill response, is an iterative, dynamic process that calls for good information, knowledge, experience and judgement.

Tiered Level Response. Activation of personnel and equipment is based on a number of variables as was discussed above, but primarily on anticipated wildlife impacts. In California, WO experiences have been extremely varied, ranging from a catastrophic release during migratory shorebird and waterfowl season; to "mystery" spills with very little oil on the shore, but yet significant seabird impacts; to a more "typical" spill of a few barrels of petroleum resulting in a few dozen wildlife casualties. OSPR has attempted to develop a generalized response table to meet a variety of spills and WO needs. Three basic levels of WO personnel and equipment response are shown in Table 2. Most often WO will mobilize personnel and equipment at the lowest level, *i.e.*, Level I. It is important to note, however, that these categories are not rigid and that the response for each spill should be tailored on a case-by-case basis. Some extraordinary circumstances (*e.g.*, a tanker grounding and rupture, with a known discharge) would justify Level II or III (highest) mobilization at the outset. WO will notify the UC immediately of changes in the deployment of

staff and equipment as they occur (see Section 9710.3).

9710.4 WILDLIFE OPERATIONS PROCEDURES

9710.4.1. Prevention of Impacts to Wildlife: Considerations for Implementing Response Countermeasures

The primary purpose of WO is to prevent injury to wildlife or habitats either from the oil spill or from the implementation of response countermeasures. The task of the WBD is to weigh the alternatives at every juncture and identify the potential strategies, including "no action," that will produce the fewest adverse effects to wildlife and wildlife habitat. In conjunction with the Planning Section, the WBD also may be required to evaluate tradeoffs among sites and decide which sites or wildlife resources will inevitably be affected. This will help save wildlife at a different location that may have been assigned a higher response priority (see Section 9973).

Use of Spill Response Countermeasures in Wildlife Areas. The simplest means of protecting marine wildlife from an oil spill is to prevent the oil from reaching areas where they are concentrated, through ongoing coordination with the UC Planning and Operations Sections. In many cases, this can be accomplished by tailoring the use of standard spill response equipment and techniques to wildlife protection requirements. Such countermeasures include mechanical offshore recovery methods, alternative response technologies (ARTs), and shoreline recovery techniques (see Section 4500). The application of these countermeasures, whether for wildlife protection or for other aspects of spill response, should at all times be guided by the sensitivity and vulnerability of the wildlife and habitats in the spill response area. Similarly, staging areas for equipment should be selected carefully to avoid collateral impacts. Such techniques and their wildlife protection capabilities and limitations are addressed elsewhere in this ACP (see Section 4500).

The use of standard spill response countermeasures in areas supporting abundant wildlife creates a risk of adverse effects to wildlife that arise out of, but are not always directly caused by, the spilled oil. Before use, each response strategy proposed in wildlife areas should be evaluated for its potential harmful impacts. The Planning Section and the WBD should weigh the capacity of standard spill response countermeasures to aid wildlife operations against the potential of these same technologies to cause harm to wildlife, selecting the least harmful alternative. For example, if the use of helicopters is considered during response, it is important to establish minimum altitude limits and no-fly zones in environmentally sensitive areas, such as bird colonies and marine mammal haul-outs. All of this must be accomplished in an expedited time frame, consistent with the overall response needs.

Table 2: Recommended Tiered Level Response of Personnel and Equipment for Wildlife Operations

Use as general guide to activate WO resources. This table has been developed from response experience to a variety of spills (*i.e.* oil type and volume, location, season), but is based primarily on expected wildlife impacts as outlined for each tier level. It represents dedicated resources to be provided by OSPR, OWCN and other natural resource trustee agencies. WO resources should be tailored specifically to meet the needs of each incident.

LEVEL I
(Incidents where WO projections are for at least dozens of marine birds impacted; typically a smaller geographic area with no marine mammals)

Staff and Contractors	Equipment
Wildlife Branch Director (1) OWCN Response Director/Veterinarian (1) Group Leader (1) OWCN Staff/Unit Personnel (6) OWCN Regional Facility	Mobile Vet Lab (1) Wildlife Care Trailer (1) Vet Truck (1) One-Ton Wildlife Truck (1) ATV (2) Capture/Reconnaissance Boat (1) Air boat (1) Wildlife Supplies Trailer w/various Hazing Equipment (1) GPS Receivers Cellular phones or radios

LEVEL II
(Incidents where WO projections are for up to low hundreds of marine birds, and a few marine mammals):
All of the resources shown in Level I **plus:**

Staff and Contractors	Equipment
Deputy Wildlife Branch Director (1) Group Leaders (2) Processing Group Team (5) OSPR & Contract Veterinarian (2) OWCN/CMMSN Staff (mammals) (6) Reconnaissance/Recovery/Vet Services Group Staff (15) OWCN Trained Volunteers (15) Specialized Wildlife Experts (contractors) (4) Wildlife Aerial Response Team (3) OWCN Regional Facility (as needed)	Mobile Vet Lab (1) Wildlife Care Trailer (1) ATV (2) Capture/Reconnaissance Boat (3) Wildlife Transport Trailer (1) Wildlife Supplies Trailer (2) Air boat (1) DFG Fixed Wing Aircraft (1) GPS Receivers Cellular phones or radios

LEVEL III
(Incidents where WO projections are for high hundreds or thousands of marine birds and tens to dozens of marine mammals):
All of the resources shown in Levels I and II **plus:**

Staff	Equipment
Contract Veterinarian (3) Group/Unit Personnel (6) Additional OWCN Facilities (as needed) OWCN staff and Trained Volunteers (90)	Capture Boat (4) Air boat (3) Wildlife Supplies Trailer (1) ATV (4) Helicopter Support

Any time ARTs are considered, special attention should be paid to their potential effects on wildlife, their method of application, and monitoring during application. When in-situ burning (ISB) is considered, wildlife within the burn area should be hazed away or captured if they have already become contaminated. Moreover, the application of dispersants over concentrations of birds, sea otters, kelp forests, and other sensitive species should be avoided. Evidence suggests dispersants wash natural oils off feathers and fur, reducing insulation and buoyancy and may be directly toxic to wildlife. After dispersants have mixed with water, the risk is significantly reduced, but not entirely eliminated. Areas where concentrations of wildlife have been observed during reconnaissance flights and other wildlife operations should be eliminated from operational plans when dispersant use is considered.

Human-Related Disturbance in Wildlife Areas. Oil impacted or ill wildlife will not typically strand on a shoreline that has constant human activity, causing them to stay at sea or search for more isolated locations. This delay in stranding, causes a delay in capture and subsequent rehabilitation. In order to recover as many spill-affected animals as possible, human disturbance along oiled beaches and shorelines as well as known stranding areas should be minimized. Thus, when feasible, it is advisable for the UC to close such areas to the public, and allow access only to response personnel designated to capture oiled wildlife. Personnel involved in response activities, particularly on islands and along shorelines in the spring and summer months, should be alerted to the presence of nesting birds, bird colonies, pinniped breeding and haul-out areas, and salt marshes, which are vulnerable to the effects of disturbances and trampling. Sensitive areas should be posted and access should be restricted.

Both response personnel and the public should be instructed not to attempt to capture, disturb, or dispose of oiled wildlife. The public should also be alerted (via the Joint Information Center) to leave both live stranded animals and dead animals in place and undisturbed so that they may be retrieved by trained response personnel. The locations of live stranded animals can be flagged by response personnel to alert wildlife recovery teams and aid in expedited capture.

Personnel Safety During WO. Worker safety must be considered before any wildlife reconnaissance, protection or retrieval effort is conducted. The safety hazards that may confront WO personnel include toxic vapors, fire hazard, hazardous weather and seas, unsafe footing and injuries inflicted by wild animals. Therefore, all WO activities must conform to the Site Safety Plan (see Sections 2222 and 9932.1). All personnel involved in WO must have appropriate job-specific safety training for the tasks to be performed. They must be adequately protected with the appropriate personal protection equipment (PPE) (rubber boots, safety glasses, gloves, etc.) and trained in wildlife handling techniques that ensure worker safety and present the least amount of stress to wildlife (Chen Valet and Camlin, 1995). Additional training issues are addressed in the Volunteer Coordination and Management Plan (see Section 9720). The detailed protocols followed by OCWN personnel, describing the capture, transport, and rehabilitation of oiled wildlife are contained in OWCN manuals (OWCN 1998a and 1998b).

9710.4.2 Wildlife Reconnaissance Group

The WO Reconnaissance Group identifies wildlife resources at risk by collecting real-time wildlife species abundance and location information in order for the WBD to develop and implement effective wildlife response strategies (Figure 2). While baseline data, as discussed in Section 9710.2, are essential, variations from baseline conditions, due to daily and seasonal movements of birds and mammals, necessitate rapid, real-time characterization or reconnaissance of wildlife concentrations in the spill area. Depending upon the size and type of the spill and the habitats involved, real-time data will be collected using aircraft, boat and ground surveys. Specific standardized, repeatable

methodologies have been developed for each type of survey (ECI, 1992).

The Wildlife Reconnaissance Group is directed by the Group Supervisor (for duties, see Section 3251). The Group Supervisor is responsible for establishing and supervising the Aerial, Boat and Shoreline Reconnaissance Units, and for making survey team assignments. Reconnaissance Group personnel include the Aerial Survey Unit Leader (for duties, see Section 3251.1); the Boat Survey Unit Leader (for duties, see Section 3251.2) and the Shoreline Survey Unit Leader (for duties, see Section 3251.3). Because these units all operate in the field collecting real-time information, it is critical that each team maintain a means of communication to the command post (*e.g.*, Unit leader, a Group supervisor, or WBD).

Reconnaissance Group staff may include professional wildlife biologists, trustee agency representatives, OWCN personnel, the OSPR Aerial Wildlife Response Team (an OSPR contingency contractor), and other trained people. If specialized surveys for threatened and endangered species are needed, additional wildlife specialists may be called in by the Reconnaissance Group Supervisor or WBD. These specialists will advise the WBD and the UC about threats to listed species, the locations and numbers of oiled animals, and the need for capture, hazing or other protection strategies. These experts will survey on foot or by boat and will use species-specific observation protocols. In 1997 and 1998, for example, such specialists conducted useful surveys of California brown pelicans, western snowy plovers and marbled murrelets during oil spills.

Aerial Survey Unit. The aerial survey team will characterize the abundance, distribution, and species identification of on-water marine birds and mammas in or near the spill area (ECI, 1992). These flights complement, but do not replace, operational overflights for mapping oil. Using a global positioning system (GPS) linked to a laptop computer, the results of observations made on flight transects can be recorded, and in some cases, may be relayed near real-time by radio to a GIS specialist to produce graphical representations of current wildlife concentrations and locations

The OSPR Aerial Wildlife Response Team should make an initial flight covering a broad area of open water that includes the spill location and its likely trajectories. This should be done within a few hours following WO activation. Search patterns usually involve defined transect lines perpendicular to the coast. Such flight transects will most likely be flown in a CDFG twin engine observation aircraft at an altitude of 200 feet. Reconnaissance flights should be repeated each morning and afternoon, or at appropriate intervals based on such variables as wildlife resources at risk, amount of oil on water, trajectories, weather, or as otherwise directed by the WBD. Such reconnaissance activities should be closely coordinated with Air Operations within the UC (see Section 3220).

Boat Survey Unit. On-water survey teams may be dispatched to assess oiled and at-risk wildlife in offshore or nearshore coastal waters, bays or sloughs. While boat surveys most often involve searching open water areas, they are also frequently used to search shorelines that are inaccessible by land. Teams will characterize species abundance and distribution of wildlife within the spill area. In most cases, personnel will be observing seabirds and marine mammals. Observations of other natural resources such as schooling fish, sea turtles and plankton blooms are also notable. This information is commonly known as “ephemeral” or “time-critical.”

Observers will collect information on species present and their condition -- live, dead, oiled and unoiled; basic weather and sea conditions; and any other notable occurrence which may be useful to WO or the UC response. As a guide, information can be recorded on the Wildlife Reconnaissance Survey Form (see Attachment 1 and Appendix IV) with appropriate notations of the transect location, search time and methods. In some cases, on-water survey teams may also be responsible for collecting dead wildlife and catchable live oiled animals. If this is a designated team assignment, personnel on board must have the necessary minimum qualifications, along with specialized training and equipment needed to capture animals expected to be found. Otherwise, sightings of recoverable wildlife will be relayed to the Recovery and Transportation Group for immediate follow up. In any

case, teams must update their chain of command frequently regarding progress, observations, and issues.

Specific search patterns and techniques will depend on the survey type, habitat (*e.g.*, nearshore or bay) and species at risk (*e.g.*, marbled murrelets). In general, searches will be performed at constant speeds, cruising along fixed ladder-shaped or grid-pattern transect lines over a predefined search area. The search area and distance around the spill area will depend on the habitat, weather, sea conditions, water depth, and predicted tides and currents. These factors should be defined before beginning the survey. In small bays and sloughs transects may involve navigating up channels and/or following shorelines.

To effectively document search areas, track information derived from a differential GPS is recommended. Each team should also maintain appropriate communications with the Boat Unit leader, Reconnaissance Group supervisor, and/or WBD via cellular phone or VHF radio. Timely, regularly scheduled reports of observations are essential to keep the UC informed and provide the best possible response.

Boat survey teams should include more than two people for safety and search efficiency considerations. Depending on the boat and search area, two persons are minimum and three are optimal for each boat. In all cases, at least one member of the team must be qualified to operate the boat considering the habitat, weather and sea conditions that exist during the spill. Other personnel must be qualified to observe wildlife at sea and on-water.

Boat survey teams may operate from a variety of craft depending on the habitat and conditions. Any coastal surveys will be done from a boat certified for ocean use and suitable for expected weather and sea conditions. This may include 20 to 30ft work boats, such as Boston Whalers, or inflatable boats. In small bays or sloughs shallow-draft boats are preferred. These may include skiffs, inflatables, airboats, hovercraft, canoes or kayaks.

Shoreline Survey Unit. Shoreline survey team will be dispatched to gather ephemeral or time-critical information via surveys in shoreline areas that are oiled or that are expected to be oiled. These reconnaissance surveys will provide information regarding: biological resources (live and dead; oiled and non-oiled); shoreline habitats; seasonal features such as bird and pinniped rookeries; marine mammal haul-out areas; estuarine mudflats and marshes; streams blocked by natural seasonal berms and rivers flowing to the ocean.

During the initial stages of a spill, shoreline survey teams will be assembled by the WBD. One person on each team will be designated as the team leader. This person will be responsible for decisions relating to human safety and data integrity; for reporting reconnaissance information back to the Unit Leader, Group Supervisor or WBD prior to each daily pre-planning meeting; and for disseminating the following day's assignment to team members.

The Reconnaissance Group Supervisor or Shoreline Survey Unit leader will assign sections of the coast to survey and tasks to each team (Carter and Page, 1989). Each team should receive survey and reporting instructions. Reporting instructions should include the name and phone number to whom to report findings, as well as specific items which need to be reported, *(e.g.*, live vs. dead species, numbers and/or species of oiled and unoiled resources at risk, endangered and threatened species, etc.). Each team should also receive instructions on the disposition of samples or animals collected, survey forms, and the locations of intake stations. Members of the survey teams should receive a daily phone list for the WBD and his/her alternate at the Incident Command Post, the Group Supervisor, the intake station(s), and contacts to gain access to special or secure areas. Communications must be open throughout the day to provide new direction or report observations up the chain of command.

Survey teams should be provided with data on resources at risk, including environmentally sensitive site and response strategy information from Section 9973, and the Wildlife Reconnaissance

Survey Form (Attachment 1 and Appendix IV). The same version of each form should be used by all shoreline survey teams. Other suggested survey equipment includes:

- Proper and necessary personnel protective equipment (PPE);
- Regional maps that include consistent beach names, numbers and access routes;
- Waterproof notebooks;
- Binoculars;
- "Clicker counters;"
- Cellular phones or VHF radios; and
- GPS receiver units.

While it is not the primary function of the Shoreline Survey Unit to collect wildlife, Reconnaissance Group teams may be paired with Recovery and Transportation Group teams (at the direction of the WBD or Group Supervisor) to increase the speed and efficiency of shoreline surveys. In such instances, survey and recovery tasks may be performed by both groups simultaneously. In any case, uncaptured, impacted wildlife sightings should be reported to the Recovery and Transportation Group leader. In past spill responses, attempts have been made to join Wildlife Reconnaissance Teams with Shoreline Cleanup Assessment Teams (SCAT). Because of their different objectives, types of information collected, and the method and speed of surveys, it is not recommended to combine these functional teams.

During moderate-sized spills, survey teams should consist of a minimum of two people for safety and to expedite the surveys, although studies (Roletto et al., 1998) have shown that on long, broad sandy beaches a survey team of three people is optimal for efficiency. Team tasks can be divided among team personnel in any number of ways (*e.g.*, by shore zone, by function, or by expertise). For example, on a two-person team, one member can conduct wildlife observations, recording numbers and species of birds and mammals, both oiled and unoiled, and assessing the potential for capture of oiled wildlife. The second member can investigate the wrack line and shore for evidence of oiling and identification of any dead oiled wildlife.

Walking beaches on foot is the most effective method for locating wildlife with little disturbance. However, vehicle use can also be effective to expedite survey search time, depending on the terrain and the size of the area to be covered. Special considerations pertaining to collateral impacts on wildlife must be addressed before reconnaissance surveys via ATVs are authorized by the WBD. Authorization from the appropriate trustee agencies also must be obtained prior to authorizing any activities using ATVs in national parks and wilderness areas. Because ATVs will potentially haze animals back into the water, caution and planning must be exercised. Close coordination with the Recovery Group should occur so as not haze injured wildlife.

Shoreline survey teams generally are staffed by professional wildlife biologists, who most likely will have previous oil spill and specific coastal field observation experience. At the discretion of the Reconnaissance Group Supervisor, survey teams also may include qualified OWCN staff and/or trained observers with knowledge and experience in oiled wildlife identification and handling. At a minimum, personnel conducting wildlife reconnaissance should be experienced at identifying species of pinnipeds and California coastal birds, including gulls, alcids, shorebirds and diving birds, and should be able to identify both breeding and alternate plumage in order to determine whether a live bird is oiled. Teams will likely conduct most surveys on foot, however, ATVs are often used which will require additional training.

Use of Reconnaissance Data for Near Real-Time Survey Mapping. Within minutes after receiving data from an aerial, boat or shoreline survey team, a GIS specialist, most likely from the Technical Specialist Unit in the Planning Section or the Wildlife Impact Documentation Unit, can create, and provide to the UC, a map depicting resources at risk on open water and shorelines, using

pre-established grid block units. This map will assist the WBD in identifying and ranking wildlife response strategies. For example, site-specific booming or hazing actions may be recommended based on this information. Also, the presence of an especially sensitive wildlife resource in a spill trajectory might prompt or preclude the use of dispersants or other ARTs. The integration of pre-spill (baseline) data and reconnaissance information provide the WBD and the Planning Section Chief with the ability to develop a common understanding of, and strategy to protect wildlife resources at risk during response.

9710.4.3 Hazing Group

Once oiled, habitats that have been traditionally attractive to wildlife may be candidates for hazing actions (Figure 2). If oil-free and disturbance-free habitats are known to be available in the vicinity and continued exposure to oil in the contaminated traditional use areas is anticipated, hazing may protect wildlife from an oil spill by deterring them from entering oil-contaminated areas on water or land (Greer and O'Connor, 1994; Thomas, 1994; USDA 1997a, 1997b, 1997c).

The Hazing Group, which will undertake these activities, is directed by the Hazing Group Supervisor (for duties see Section 3252) who reports to the WBD. The Group Supervisor is responsible for minimizing wildlife impact and losses during spill responses. Other personnel in the Hazing Group may include state or federal trustee agency biologists and university or OWCN personnel with appropriate authorization and training.

If wildlife impacts are deemed to be unavoidable due to the predicted movement of oil in the hours and days following a discharge, then hazing can be initiated with little risk of exacerbating impacts. Hazing should always be considered in heavily-oiled habitats, particularly when clean sanctuaries can be designated in the area. Hazing is likely to be most effective when birds are concentrated in coastal lagoons, estuaries and bays. Hazing is likely to be ineffective or counterproductive, however, if the spill area is too large to focus deterrent actions or if animals are likely to be pushed into oiled habitat. Wildlife that has already been oiled should not be dispersed, since this can lead to the introduction of oiled animals into uncontaminated areas and populations. Rather, oiled animals should be captured as soon as practical.

Hazing activities must take place only under the authority and oversight of the trustee agencies, in coordination with the UC. The recommendation to haze will be guided by site-specific and species-specific factors operating at the time of the spill, and by proven hazing techniques. A variety of hazing devices are available and can be deployed to meet the situation, such as propane cannons, cracker shells, alarms and whistlers, flags, predator models, human effigies, and others. These techniques, specialized hazing equipment and special hazing considerations for wildlife are described in detail in the General Wildlife Hazing Plan included in Appendix IIIb.

9710.4.4. Wildlife Recovery and Transportation Group

Wildlife recovery and transportation involves the collection of dead and live oiled wildlife and their transport to processing centers (see Sections 9710.4.5 and 9710.4.6). These activities are performed by the Wildlife Recovery and Transportation Group, in close coordination with the UC and the State and federal trustee agencies. The appropriate trustee agency representative(s), such as someone from the CDFG, USFWS or NOAA/NMFS, must approve wildlife collection by any organization, including participating OWCN organizations (see 14 CCR 679(d); Section 9710.2, above).

At any time during the year, a California beach is likely to reveal various marine bird and mammal carcasses or stranded live animals that may or may not be spill related casualties (Stenzel,

1988). It is not feasible, reliable, or practical to attempt to discriminate between spill-related and non-spill-related casualties while conducting beach surveys during the response. For example, scavenged carcasses or dark plumage and wet carcasses that may be spill related are not always identifiable in the field as such. Additionally, seabirds are known to succumb to the effects of oil ingested during feeding or preening even when no oil is apparent on their plumage. Therefore, it is recommended that all animals, live and dead, be collected and processed for more definitive triage.

Oiled wildlife collection, treatment and rehabilitation are legislatively mandated and are important for spill documentation, humane and public relations reasons (Jessup and Mazet, 1999). In addition, the prompt removal of disabled and dead oiled animals from the environment can be critical to minimize the effects of secondary oiling such as poisoning of predators and scavengers. Appropriate measures must be undertaken by the PRP and the UC to insure that dead animals are collected appropriately, identified, documented and not disposed of until approved by the trustees.

During a spill, the public views any dead animal, regardless of the cause of death, as a problem requiring the attention of response personnel. The problem is best resolved by removing all dead animals. The systematic processing of the collected wildlife provides the UC with the necessary data to make informed statements about the status of affected wildlife and the environmental consequences of an oil spill (see Section 9710.4.5).

The Recovery and Transportation Group is directed by the Recovery and Transportation Group Supervisor (for duties see Section 3253) who reports to the WBD. The Group Supervisor is responsible for the recovery of dead and live, oiled and unoiled wildlife that have been identified by the Reconnaissance Group or other individuals, and for the transportation of affected wildlife to processing/rehabilitation centers. The Group Supervisor should frequently update and coordinate with the Situation Unit of the Planning Section.

Once animals have become oiled, habitat-specific and species-specific strategies to recover and remove disabled and dead wildlife are required. Systematic shoreline surveys for affected wildlife ideally should be carried out several times per day. Preferred search times are before dawn, at dusk, and in the middle of the day. Surveys are often conducted on foot or by boat, however, the use of ATVs and four-wheel-drive trucks can expedite search times. Caution should be exercised with ATVs as they may scare wildlife back into the water or cause the animal(s) to flee the site. Successful captures not only depend on the condition of the animal, but also on the training and experience of the handler, and techniques and equipment used. For detailed and specific information on wildlife capture training, techniques and tools, see OWCN 1998a and 1998b.

Each team should work in pairs and be outfitted with the resources and equipment necessary to complete their assignment. Technological advancements and improvements have been incorporated into the information gathering phase of this overall task. For example, GPS receivers can now be used to mark locations of collections and survey transects. This GPS information can be downloaded to a GIS specialist who can graphically depict widlfie recovery sites and stranding locations. Additionally, field tag labels with preprinted barcodes can be affixed to live and/or dead animal bags or carriers. The use of barcodes will allow the Group Supervisor and WBD to track the individual animals through the capture/collection, processing, and for live animals the rehabilitation and release process via a computer database. Specialized equipment is identified in OWCN 1998a, 1998b. Other more basic equipment will include:

- Proper and necessary PPE;
- Dead bird body bags (collection containers);
- Pillow cases and pet carriers;
- Field tags to label to record collection information and Chain of Custody;

- Regional and Segment maps;
- Cellular phones or VHF radios;
- GPS receivers; and
- Basic capture equipment (e.g., nets).

Depending on the spill size, wildlife search, recovery and transportation can be accomplished with combinations of personnel from various WO groups or units. If response circumstances are favorable and properly trained personnel are available, wildlife recovery personnel may be integrated with Reconnaissance Unit teams who perform frequent (at least daily) systematic surveys of beaches/shoreline within the spill boundaries. For example, information on the location of captures and collections of dead and live animals throughout the survey area should be recorded to guide subsequent efforts and inform the UC of impacts to specific geographic areas (see Section 9710.4.5). When live animals are located, transfer arrangements must be made to promptly so transfer teams can take live birds and mammals to an OWCN rehabilitation facility. The timely deployment and coordination of recovery and transportation teams is best accomplished through open radio communications on dedicated frequencies or by cellular phone.

Recovery and Transportation personnel are from the OCWN, OSPR, other State and federal trustee agencies, and approved contractors. As with other WO activities, Recovery and Transportation personnel will include a high proportion of professional wildlife biologists as well as trained, qualified volunteers obtained through the OWCN and/or OSPR Volunteer Coordinators.

Capture and Transport of Oiled Birds. Teamwork is essential to minimize stress in oiled birds (OWCN 1998a). As they lose their waterproofing, many species of birds move to shore, first preening on open beaches and river banks and later hiding under cover.

Success at recovering wildlife (especially flightful or mobile individuals) depends on proper technique and timing. Methods used for search and collection will be dependent upon the location of the spill and the modes of transportaion made available through the UC. Bird retrieval techniques are most effective if begun shortly before dawn. Birds should be retrieved by qualified teams on foot with handheld nets. Small projectile nets, linear sections of net placed on the ground and baited walk-in or swim-in traps may also be used. For more information on capture equipment and techniques, see OWCN 1998a.

Handling captured birds poses risks to both handler and birds. Because of the potential for birds to inflict injury on the handler, proper PPE is essential. Eye protection should always be worn. Use of appropriate gloves and outer clothing to prevent oiling of the handler are also important. To prevent further injury to wildlife, the use of proper handling techniques by trained personnel is essential. For details on proper handling techniques, see OWCN 1998a and “Wildlife Handling” in Appendix IIIa.

After capture, birds should be immediately placed in pillowcases or ventilated, solid-sided pet carriers, cardboard boxes, or plastic airline kennels for transport. Social, nonaggressive birds (such as common murres) can be placed with one or two conspecifics, but aggressive species, such as loons and cormorants, should be individually housed. Once captured, oiled live birds should be transported to the designated OWCN facility as soon as possible. If marine bird species must be transported for long distances or remain in per carriers for longer than three hours, net-bottomed floors should be used. Since hypothermia is an important biomedical problem which affects oiled wildlife, it is advisable to bring oiled birds into a warm indoor environment as soon as possible, and to transport them in warm ventilated vehicles.

Capture and Transport of Marine Mammals. The need for marine mammal capture should be evaluated on a case-by-case basis by the WBD in consultation with those trustee agencies that

have specific regulatory authority: the USFWS, the NMFS, and the CDFG. The protocols that guide decisions to capture and transport marine mammals are described in Appendix Ib and in OWCN 1998b. If oiled pinnipeds, sea otters, or cetaceans are determined to be ill and require retrieval, capture will be instituted by the WBD in conjunction with the CDFG, NMFS, the USFWS for sea otters, the California Marine Mammal Stranding Network (CMMSN) and the OWCN. Capture and transportation of oiled mammals should be performed only by qualified personnel who have received the appropriate safety training as well as marine mammal handling and restraint training. For more information regarding actual search and collection techiniques of marine mammals, see OWCN 1998b.

Generally, the potential benefits of capture must outweigh the potential negative consequences. A decision to capture should consider the size of the individuals and their location with respect to other marine mammals. The method of capture may vary accordingly. While sea otters and fur seals can be immediately and acutely affected by oil, other pinnipeds may be able to withstand some short-term external exposure to oil. Captures will generally be considered for isolated individuals on beaches, spits, tide flats or other relatively flat surfaces, using herding boards and nets (brail, breakaway, or steel frame pole). Less often, captures may be attempted from rock jetties, piers, docks or even in the water for severely debilitated animals. Long-handled dip nets, floating bag nets and a net gun have all been used with some success. Depending on the species involved, aquatic captures may use tangle nets, float nets or Wilson traps. Animals will be placed into kennel carriers or similar cages of an appropriate size, and immediately transported to designated marine mammal care facilities (see Table 1 and Figure 3). Shaved ice or water will sometimes be needed to avoid overheating.

Capture and Transport of Sea Otters. Sea otters are a special case because of their extreme susceptibility to oil and their status as a federally listed species. The capture and treatment of sea otters is addressed separately in Appendix IIIc, the Sea Otter Oil Spill Contingency Plan.

9710.4.5. Wildlife Processing Group

All dead and live wildlife encountered in the spill response area should be retrieved by the Recovery and Transportation Group (see Section 9710.4.4, above) and transported to the wildlife processing center(s), regardless of the condition (degree of decomposition, degree of oiling, etc.) of the carcass or live animal. The Processing Group then logs these animals into the center to receive treatment (live animals) or be placed in storage (dead animals). The Processing Group maintains an accurate record of all impacted wildlife. Each animal is brought to the center and the status and progress of each individual is tracked by the Processing Group through the WO system. This systematic documentation of adverse effects on wildlife will provide an understanding of the short- and long-term consequences of oil spills to wildlife populations and assist in the guidance of spill response actions.

The Processing Group is directed by the Processing Group Supervisor (for duties see Section 3254), who reports to the WBD (see Figure 2). The Group Supervisor, who may be the same as, and will in any event coordinate closely with, the Veterinary Services Group Supervisor, is responsible for establishing and maintaining centralized wildlife processing centers to receive all affected wildlife collected (dead or alive), and documentating and transportating dead wildlife to a secure storage facility (see Live and Dead Bird/Mammal Intake Logs, Appendix IIIa). The Supervisor establishes and directs the operations of both the Wildlife Intake Unit Leader (for duties see Section 3254.1) and the Wildlife Impact Documentation Unit Leader (for duties see Section 3254.2). The Group Supervisor will coordinate unit activities with the Veterinary Services Group and Recovery and Transportation Group Supervisors. Wildlife processing personnel may include

trained agency and OWCN scientists and also may be conducted by trained staff under an OSPR contingency contract.

Intake Unit. Depending on the geographic range of the spill and the numbers of animals impacted, one or more wildlife processing centers may be established and directed by the Processing Intake Unit Leader. It is the responsibility of the Processing Group Supervisor to assess the need for multiple centers, and to set up, staff, establish record keeping procedures, and coordinate each center.

Staff in this Unit can include six basic positions at each center: the Unit leader, a Receiver, a Data Collector, a Data Processor, a Photographer, and an Animal Handler. More staff may be necessary if the number of animals entering the center is overwhelming; or less, under light impact situation where staff can perform multiple duties. For detailed information regarding specific tasks of each position, see the Wildlife Unit Protocols in Appendix IIIa. Since most of the wildlife likely to be oiled are birds, wildlife intake and processing in WO should be conducted by field biologists trained in the systematic collection of information from dead and live birds (Schuster et al., 1998).

With each processing center there will be two sections (live and dead animals), each containing two basic stations (Intake and Processing). As live and dead wildlife come to the processing center, they enter the Intake Station first. This is where all wildlife are logged in and information regarding the collector should be obtained and recorded on the Chain of Custody Intake Log (Attachment 2 and Appendix IIIa). The Processing Station is where all information necessary to complete either the Live or Dead Bird/Mammal Log is performed, as well as photographing the individual, prior to entering the rehabilitation process or dead animals going to storage. All information regarding wildlife processed through the system should be recorded on standard Live and Dead Bird/Mammal Log Forms (see Attachments 3 and 4, and Appendix IV). Barcodes from field tag labels can be scanned and an immediate identity given to that individual while in the system. Information documented on the forms include such items as: the collection location, species identification, plumage, presence and degree of oiling, injuries, band number if present, degree of decomposition, evidence of scavenging, etc should be noted (Ainley et al., 1994 and Appendix IV). All processing intake personnel should use the Live and Dead Bird/Mammal Log and the Chain of Custody Intake Log forms to ensure consistency of data. In addition, photographs should be taken and feather samples should be collected and preserved for future use if chemical fingerprinting of the oil becomes necessary. These data will help to determine whether or not the birds collected are spill-related casualties, and will provide the UC with sufficient documentation to make timely accurate statements concerning wildlife impacts. More detailed procedures are located in the Wildlife Processing Protocols in Appendix II.

Following intake and documentation, dead animals should be systematically packaged and transported to a secure freezer for storage. In recent years, this location has been the CDFG freezer at the Marine Wildlife Veterinary Care and Research Center (MVCRC) at Santa Cruz. This action will protect the interests of the trustees, the PRPs, and the USCG. If necessary, the carcasses can be re-examined to resolve problems with body counts, species identification or to secure additional samples for investigations. In some instances, necropsies may be performed concurrent with resonse activities to identify cause of death or disease outbreaks (see Section 9710.4.6). Disposal of the carcasses will occur when the federal and state trustee agencies give the authorization and will be disposed of in accordance with federal and state laws.

Wildlife Impact Documentation Unit. The Wildlife Impact Documentation Unit, directed by the Wildlife Impact Documentation Unit Leader, will maintain the database of information received from the Intake Unit in order to anticipate rates and locations of strandings and establish the status of impacted wildlife. Reports of locations, species and numbers of dead and live animals received are

provided to the WBD and the Situation Unit in the Planning Section on at least a daily schedule.

Information from the Live & Dead Bird/MAmmal Logs will be summarized for the WBD and UC. In the past, this has been done by hand in a tabular format. With increasing use of GPS, barcodes and databases, we now have the ability to integrate this information into a GIS, and graphically dipict collection sites or any other information layer as needed. Currently, the CDFG is developing a spill response database that will allow for the direct input of the Live & Dead Bird/Mammal Logs, Chain of Custody Logs, and patient medical record information. This technology should expedite information summarization and record keeping.

Through this process, the UC can document adverse effects on wildlife resources, communicate this information through the Joint Information Center, anticipate work loads and estimate the duration of the response. This type of documentation is also important for public information. The public often gauges the significance of a spill by the numbers of affected animals. The legislature and the media also demand to know how wildlife has been impacted. The number of dead and live birds is one index. It is important to emphasize, however, that the animals recovered through WO can give only a rough indication of the kinds of species and resources affected, and that a clear understanding of the magnitude and consequences of spill impacts will necessarily depend upon post-response follow-up studies, an analysis of the data collected during the spill and comparisons with baseline conditions.

9710.4.6 Veterinary Services Group

The Veterinary Services Group within WO ensures that wildlife exposed to petroleum products can receive the best achievable treatment, by providing access to trained personnel and permanent wildlife rehabilitation facilities statewide (see Figure 2 and Table 1). The Group is directed by the Veterinary Services Group Supervisor (for duties see Section 3255), who reports to the WBD (see Figure 2). The Group Supervisor is responsible for activating and maintaining wildlife rehabilitation centers during a response. The Supervisor is also responsible for receiving live oiled wildlife from the Intake Unit (see Section 9710.4.5, above) and processing into the veterinary services/rehabilitation system, which involves conducting triage, treatment, rehabilitation and release. The Veterinary Group Supervisor may be the same as, and will coordinate closely with, the Recovery and Transportation Group and Processing Group Supervisors. In the majority of past spill responses in California, this position has been filled by the OWCN Response Director.

Bird, Pinniped, and Sea Otter Units. The Group includes three units to handle specialized wildlife rehabilitation issues: the Bird Unit, the Pinniped Unit and the Sea Otter Unit. All of these groups operate under the direction of the Veterinary Services Group Supervisor. The group also coordinates the combined resources and capabilities of the OWCN and any other private wildlife care organizations to provide optimum treatment and rehabilitation services.

Each Unit Leader under the direction of the Veterinary Services Group Supervisor is responsible for receiving live oiled birds, pinnipeds, or sea otters requiring extended care and treatment at established treatment centers, recording essential medical information, conducting triage, stabilization, treatment and rehabilitation (see OWCN Oiled Bird Intake and Daily Progress Forms in Appendix IV). Specific protocols regarding these animals will not be addressed here as they are highly specialized, requiring special permits, expertise and veterinary care. Details can be found in one or more of the following references: OWCN, 1998a in, Oiled Wildlife Care Network: Protocols for the Care of Oil-affected Marine Birds; and OWCN, 1998b in, OWCN Protocols for the Care of Oil-Affected Marine Mammals; and the Sea Otter Oil Spill Contingency Plan (Appendix IIIc); and the interagency agreements (Appendix Ib). The most current information on rehabilitation can be found on the OWCN website at http://www.vetmed.ucdavis.edu/owcn.

If marine mammals are involved in a spill, the NMFS or the CMMSN can provide assistance with capture and treatment (Geraci and Lounsbury, 1993; Appendix Ib). If necessary, the CDFG-OSPR mobile veterinary laboratory and animal care trailer can be dispatched to the field so veterinarians and staff can perform preliminary examinations and stabilize wildlife prior to being transported to the veterinary facility. Birds can also be examined and stabilized at remote locations in the mobile veterinary lab.

Birds are the most abundant wildlife taken in at the processing centers and are often treated and released within three weeks. However, the time in care depends on the location of the spill, product involved, species, preexisting injuries, and other logistical concerns. When rehabilitated animals are scheduled for release, local wildlife managers are consulted to identify oil-free and disturbance-free release sites. As a part of the spill response actions, birds and mammals are banded or tagged and, in some cases, fitted with telemetry equipment for post-release monitoring. Released birds and mammals that behave abnormally or are noticed by the public may be recaptured if necessary.

Necropsies on selected dead animals may be conducted by wildlife pathologists concurrent with spill response, to inform the response and guide Veterinary Services Group in the treatment of remaining animals. There are several reasons for necropsies during a spill response (Appendix Ib). For example, captivity-related diseases may necessitate necropsies to identify pathogens so that corrective medical actions can be taken (Jessup and Leighton, 1996). Fatalities to apparently unoiled wildlife may necessitate necropsies to determine if ingestion of petroleum has occurred or if there are other naturally occurring reasons for death (*e.g.* starvation).

Veterinary facilities designed for oil spill response must meet minimal space requirements and incorporate all required aspects of wildlife treatment and rehabilitation activities. An ideal facility should include: an intake/physical exam/evidence processing area; a veterinary hospital with isolation capabilities, indoor wildlife housing/caging, food storage and preparation facilities, animals washing and rinsing areas, indoor drying pens, outdoor pool and pen areas, and pathology facilities; volunteer training/eating area with restrooms; administrative offices with multiple phone/fax lines and conference space; storage; and access to a large parking area.

9710.5 DEMOBILIZATION

Upon conclusion of WO, its activities are demobilized, following standard checkout procedures identified through the ICS and the UC. WO demobilization follows a conclusive determination by the WBD, in consultation with the Veterinary Services Group Supervisor and other WO Group Supervisors that all wildlife affected by the spill have been accounted for. Demobilization of WO groups and units will generally lag behind that of response equipment and personnel, due to variables such as animals remaining in rehabilitative care, the presence of residual oil, and the presence of visibly oiled pinnipeds and free-flying birds. This lag time may last several weeks.

The last resource of the UC to be demobilized will likely be personnel and equipment of the Veterinary Services Group and the OWCN facilities used during the spill. Due to the time involved in the cleaning, treatment and rehabilitation of oiled wildlife, animals that may come into the rehabilitation center late in the response will likely be in care for a few weeks, and so may require care after other response resources have demobilized. In general, the rehabilitation center will continue to operate for three weeks following admission of the last animal into rehabilitation. During that time, as more animals are released and fewer animals remain in care, personnel and equipment resources will be gradually demobilized. After the last animal leaves care, the center should be sanitized and prepared for the next response before closing down.

Attachments

Forms:

1. Wildlife Reconnaissance Survey Form
2. Chain of Custody Intake Log
3. Live Bird/Mammal Log
4. Dead Bird/Mammal Log
5. Codes for Live & Dead Bird/Mammal Logs

Wildlife Field Reconnaissance Form - Shoreline or On Water Observations

1. Incident Name: _____ **2. Observation Team**: _____

3. Date: _____ **4. Time Start**: _____ **5. Time End**: _____

6. Segment Name: _____ **7. Segment No.**: _____

8. Survey Length: _____ ft. **9. Survey Width**: _____ ft. **10. Latitude**: _____ N **11. Longitude**: _____ W

12. Survey Mode: Foot ☐ Vehicle ☐ Boat/Ship ☐ Airplane ☐ Helicopter ☐ **13. Tide Table Data at Start of Survey**: _____ ft.

14. Weather: _____ (Describe Briefly) **15. Beaufort Scale**: _____ (See Chart) **16. Visibility**: < 0.1 mi ☐ (< 160 m) 0.5 mi. ☐ (800 m) 1.0 mi. ☐ (1.6 km) > 1.0 mi. ☐ (> 1.6 km)

17. Round Trip Mileage: _____(miles) **18. Round Trip Driving Time**: _____(hours) **19. Trip Prep Time**: _____(hours)

Species Name (See Four Letter Code Sheet)	No. of Animals	Condition Live/Dead	Oiled Yes/No	Scavenged Yes/No	Band or Tag No.	Photo Yes/No	Toe Clipped Yes/No	Comments on Wildlife (recoverable, catch technique, etc.)

Wildlife Field Reconnaissance Form - Shoreline or On Water Observations

Species Name (See Four Letter Code Sheet)	**No. of Animals**	**Condition Live/Dead**	**Oiled Yes/No**	**Scavenged Yes/No**	**Band or Tag No.**	**Photo Yes/No**	**Toe Clipped Yes/No**	**Comments on Wildlife (recoverable, catch technique, etc.)**

Chain of Custody Intake Log

Oiled Wildlife Care Network/Oil Spill Wildlife Response Team

Date: _____ **Station Number:** _____ **Location/Spill Name:** _____

Intake Number	Field Personnel	Signature	Phone Number	OWCN/OSWRT Personnel	Signature	Time Received	Species	Collection Location

Station:	
Location/Spill Name:	
Year of Processing:	
Page of	

LIVE BIRD/MAMMAL LOG
OWCN/OSWRT

Station Manager:	
Data Collector:	
Data Recorder:	
Photographer:	

Intake No.	Date Coll'ted m/d	Date Arrived m/d	Date Proc'd m/d	Coll'tion Location	Time Proc'd 24 hr	Species	Band Number	Extern. Oil Visible?	Oil not visible but oiled?*	Feather/oil Sample Taken ?	Photo Taken ?	Disp. Status	Disp. Date m/d	Morgue Bag/ Box	Bar Code

*Oil not visible but animal is oiled based on one or more of the following: smell oil, plumage malaligned/parted or sticky, skin wet/not water-proof, skin burns

Date:_____ Station:_____ Backside of Live Data Log Page ____ of ____

Intake no.	Record All Notes Here (i.e. location details, any measurements taken, sex, age, breeding condition, how determined, degree of scavenging, etc.)

Station :	
Location/Spill Name:	
Year of Processing:	
Page of	

DEAD BIRD/MAMMAL LOG
OWCN/OSWRT

Station Manager:	
Data Collector:	
Data Recorder:	
Photographer:	

Intake No.	Date Coll'ted m/d	Date Arrived m/d	Date Proc'd m/d	Coll'tion Location	Time Proc'd 24 hr	Species	Band Number	Cond-ition	Extern. Oil Visible?	Oil not visible but oiled ?*	%Bird Oiled or Sheened	Depth of Oil	Where Oiled	Feather/Oil Sample Taken ?	Photo Taken?	Morgue Bag/ Box	Bar Code

*Oil not visible but animal is oiled based on one or more of the following: smell oil, plumage malaligned/parted or sticky, skin wet/not water-proof, skin burns

Date:_____ Station:_____ Backside of Dead Data Log Page ____ of ____

Intake no.	Record All Notes Here (i.e. location details, any measurements taken, sex, age, breeding condition, how determined, degree of scavenging, etc.)

Attachment 5

Codes for OWCN/OSWRT Live & Dead Bird/Mammal LOG Forms

Record collection station number and location, year, and get printed names and initials of personnel present at the collection station while the animals listed on the page were processed.

Intake #: Using a different sequence for each station, record i.d. number which animal was given upon arrival.

Date Collected: Record the date on which the animal was collected.

Date Arrived: Record the date on which the animal was brought to the collection station. Include year only if different from year of processing.

Date Processed: Record month and day of processing.

Collection Location: Location from which the animal was retrieved.

Time 24hr: Record the time when processing for this animal began. Use 24hr military format.

Species: Use the standard four-letter abbreviations if the species name is known. If the species is unknown, indicate the lowest taxonomic category that can be determined (i.e. gull; alcid; bird).

Band #: For all recovered birds (live or dead) enter the color and number (i.e. B198 if Blue band #198) or simply the band number (if USFWS band) of the band placed on the metatarsus. If carcass is incomplete, the band can be placed elsewhere (i.e. sternum) or else should be secured to the carcass with string or wire. For turtles or phocids, plastic NMFS tags should be fitted on the hind flipper. For otariids, tags go on front flipper

Condition: (for dead animals only) **1**=freshly dead; **2**=decomposing whole carcass; **3**=body parts only-fresh; **4**=body parts only-decomposing; **5**=desiccated, mummified carcass.

External Oil Visible: **1**=yes; **2**=no, may be jet fuel, diesel, gasoline, vegetable oil, fish oil or other.

Oil Not Visible But Oiled?: **0**=no; **1**=yes, smell oil; **2**=yes,plumage malaligned or parted; **3**=yes, plumage sticky; **4**=yes, skin wet/not waterproof; **5**=yes, skin burn.

% of Bird Oiled or Sheened: (for dead animals only) **1**=<2% of body; **2**=2-33% of body; **3**=34-66% of body; **4**=67-100% of body covered; **5**=oil detected but extent undeterminable due to state of carcass; **6**=no oil detected but this may be due to state of carcass; 7=was not evaluated.

Depth of Oil: (for dead birds only) **0**=no apparent oil; **1**=superficial; **2**=moderate; **3**=deep; **4**=tar; **5**=not evaluated.

Where Oiled: (for dead animals only) **0**=no apparent oil; **1**=dorsal side only; **2**=ventral side only; **3**=entire body; **4**=bill/mouth area only; **5**=head only; **6**=wings only/fore flippers; **7**=feet only/hind flippers; **8**=more than one area but not entire body; **9**=was not evaluated.

Sample Taken?: Take a sample from oiled locations. If no apparent oil, take samples from areas which are frequently oiled. **0**=no; **1**=feather/fur sample taken; **2**=tissue sample taken. Place a copy of Intake #, species code, band number, processing date, spill event name, and processing station on both the envelope AND foil in which sample is placed.

Photo Taken?: **0**=no; **1**=yes. If yes, attach barcode and write the time it was taken on photo (if polaroid). In photo itself backdrop should clearly show: date, intake #, species code, and band number, and processing station

Morgue Bag/Box Color/#: Indicate the Color/Number combination of the morgue bag in which the corpse is placed for storage, i.e. Y5 for yellow bag number 5. If morgue bags were placed in boxes for movement or storage, indicate box number here.

Bar Code: Attach bar code sticker.

Notes: Indicate whether any notes have been taken for this animal on the reverse side of the data sheet. On this reverse side write the Intake #; and notes may include any of the following: measurements taken; age, sex or breeding condition if determined; which parts were recovered if body not whole; any conspicuous cause of death if not related to oil (e.g. gun shot wound); and a note if the specimen was known to have been contaminated by other petroleum products (e.g. if it was wrapped in plastic) or other carcasses. Other observations or details of collection can be recorded here.